ATTACHMENT B

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently amended) A method of scanning a light ~~transmission means~~ transmitter having an exit tip, comprising moving said tip in an elliptical pattern while varying the eccentricity of said elliptical pattern.

2. (Original) A method as claimed in claim 1, including varying said eccentricity by varying the length of one axis of said elliptical pattern.

3. (Original) A method as claimed in claim 2, including varying said eccentricity by varying the length of the minor axis of said elliptical pattern.

4–5. (Cancelled)

6. (Previously presented) A method as claimed in claim 1, wherein said elliptical pattern has a major axis and minor axis in the ratio of approximately two.

7–9. (Cancelled)

10. (Currently amended) A method as claimed in claim 1, wherein said light ~~transmission means~~ transmitter is an optical fiber.

11. (Currently amended) A method as claimed in claim 1, including driving said light ~~transmission means~~ transmitter magnetically.

12. (Currently amended) A method as claimed in claim 11, including driving said light ~~transmission means~~ transmitter ~~by means of~~ with a magnet attached to said light

~~transmission means~~ transmitter, wherein said magnet is magnetised axially and acted on by mutually perpendicular coils or windings.

13–15. (Cancelled)

16. (Currently amended) A scanning apparatus, comprising:

a light ~~transmission means~~ transmitter having an exit tip;

first and second ~~drive means~~ drives for resonantly driving said light ~~transmission means~~ transmitter in orthogonal directions;

wherein said first and second ~~drive means~~ drives are operable to move said tip in an elliptical pattern while varying the eccentricity of said elliptical pattern.

17. (Original) An apparatus as claimed in claim 16, wherein said apparatus is operable to vary said eccentricity by varying the length of one axis of said elliptical pattern.

18. (Original) An apparatus as claimed in claim 16, wherein said apparatus is operable to vary said eccentricity by varying the length of the minor axis of said elliptical pattern

19–25. (Cancelled)

26. (Currently amended) An apparatus as claimed in claim 16, ~~including~~ wherein said first and second drives are in the form of a magnetic drive for driving said light ~~transmission means~~ transmitter.

27. (Currently amended) An apparatus as claimed in claim 26, wherein said magnetic drive ~~includes~~ (i) a magnet attached to said light ~~transmission means~~ transmitter and (ii) mutually perpendicular coils or windings, wherein said magnet is magnetised axially and acted on by said mutually perpendicular coils or windings.

28–30. (Cancelled)

31. (Currently amended) A scanning apparatus comprising:

an X drive for driving a light ~~transmission means~~ transmitter having an exit tip in an X direction;

a Y drive for driving said light ~~transmission means~~ transmitter in a Y direction;

an X drive input signal generator for providing an X drive input signal; and

a Y drive input signal generator for providing a Y drive input signal modulated by a modulating signal derived from said X drive input signal;

wherein said apparatus is operable to scan said exit tip ~~executes a~~ in an elliptical scan pattern with varying eccentricity when said exit tip is driven simultaneously by said X drive and said Y drive.

32. (Previously presented) A scanning apparatus as claimed in claim 31, wherein:

said X drive input signal comprises a square wave signal; and

said Y drive input signal generator is configured to provide a sawtooth signal modulated by said modulating signal.

33. (Original) An apparatus as claimed in claim 31, wherein said scan pattern is elliptical and has an eccentricity that is always greater than zero.

34. (Previously presented) An apparatus as claimed in claim 32, wherein said Y drive input signal generator is operable to generate said sawtooth signal such that said sawtooth signal is repeatedly inverted according to a trigger signal comprising a delayed version of said X drive input signal.

35. (Cancelled)

36. (Original) An apparatus as claimed in claim 34, wherein said apparatus is operable to collect image data from said central portion of said scan pattern corresponding to an exit tip speed of greater than or equal to approximately 87% of a peak exit tip speed.

37. (Currently amended) An apparatus as claimed in claim 31, wherein said X drive and said Y drive are in the form of a magnetic drive ~~for driving said light transmission means~~ comprising (i) a magnet attached to said light ~~transmission means~~ transmitter and (ii) mutually perpendicular coils or windings, wherein said magnet is magnetised axially and acted on by said mutually perpendicular coils or windings and said mutually perpendicular coils or windings comprise a pair of drive coils located symmetrically each on opposite sides of a rest position of said magnet in a first plane, and a further drive coil located in a second plane perpendicular to said first plane, and said apparatus further comprises a sensing coil for sensing the position of said magnet and located in said second plane symmetrically opposite said magnet from said further drive coil, wherein each of said pair of coils, said further coil and said sensing coil are equidistant from said magnet in said rest position, said sensing coil is operable to output an output signal indicative of said position of said magnet, and said apparatus is operable to derive an input signal for said further coil from said output signal.

38. (Currently amended) An apparatus as claimed in claim ~~36~~ 37, wherein said apparatus is operable to control a) said pair of coils in said first plane and b) said further coil and said sensing coil in said second plane, to swap functions so that said pair of drive coils in said first plane act as a drive coil and a sensing coil, and said further coil and said sensing coil in said second plane act as a pair of drive coils, wherein said apparatus can perform a further scan perpendicular to said scan pattern.

39. (Previously presented) An optical fiber endoscope, microscope or endomicroscope including a scanning apparatus as claimed in claim 16.

40. (Previously presented) An optical fiber endoscope, microscope or endomicroscope including a scanning apparatus as claimed in claim 31.

41. (Cancelled)

42. (Previously presented) An optical fiber confocal endoscope, microscope or endomicroscope including a scanning apparatus as claimed in claim 16.

43. (Previously presented) An optical fiber confocal endoscope, microscope or endomicroscope including a scanning apparatus as claimed in claim 31.

44. (Cancelled)

45. (New) A method of scanning a light transmitter having an exit tip, comprising moving said tip in an elliptical pattern while varying the eccentricity of said elliptical pattern, and repeatedly varying said eccentricity between a minimum value and one.

46. (New) A method of scanning a light transmitter having an exit tip, comprising moving said tip in an elliptical pattern while varying the eccentricity of said elliptical pattern, and repeatedly varying said eccentricity from a minimum value to one and then back to said minimum value, whereby a portion of said pattern centered on the center of said elliptical pattern approximates a raster pattern.

47. (New) A method of scanning a light transmitter having an exit tip, comprising moving said tip in an elliptical pattern while varying the eccentricity of said elliptical pattern, and modulating said eccentricity by modulating the minor axis of said elliptical pattern between positive and negative extremes, so that said tip moves in both clockwise and counterclockwise directions in the course of a single complete scan.

48. (New) A method of scanning a light transmitter having an exit tip, comprising moving said tip in an elliptical pattern while varying the eccentricity of said elliptical pattern, driving said tip with an X drive parallel to the major axis of said elliptical pattern and with a Y drive parallel to the minor axis of said elliptical pattern, and synchronising at a constant phase to the X scan to allow interfacing to a standard raster display.

49. (New) A method as claimed in claim 48, including deriving said Y drive by synchronously switching a delayed version of said X drive.

50. (New) A method of scanning a light transmitter having an exit tip, comprising:

moving said tip in an elliptical pattern while varying the eccentricity of said elliptical pattern;

driving said light transmitter magnetically with a magnet attached to said light transmitter, wherein said magnet is magnetised axially and acted on by mutually perpendicular coils or windings that comprise a pair of drive coils located symmetrically each on opposite sides of a rest position of said magnet in a first plane, and a further drive coil located in a second plane perpendicular to said first plane;

sensing the position of said magnet with a sensing coil located in said second plane symmetrically opposite said magnet from said further drive coil;

obtaining an output signal from said sensing coil indicative of said position of said magnet; and

deriving an input signal for said further drive coil from said output signal;

wherein each of said pair of drive coils, said further drive coil, and said sensing coil are equidistant from said magnet in said rest position.

51. (New) A method as claimed in claim 50, further including controlling a) said pair of coils in said first plane and b) said further coil and said sensing coil in said second plane, to swap functions so that said pair of drive coils in said first plane act as a drive coil and a sensing coil, and said further coil and said sensing coil in said second plane act as a pair of drive coils, whereby a further scan can be performed perpendicular to said elliptical pattern.

52. (New) A method of scanning a light transmitter having an exit tip, comprising moving said tip in an elliptical pattern while varying the eccentricity of said elliptical pattern,

including driving said light transmitter magnetically, wherein said light transmitter is provided with a coat of magnetic material or located within a close-fitting magnetic tube.

53. (New) A scanning apparatus, comprising:

a light transmitter having an exit tip; and

first and second drives for resonantly driving said light transmitter in orthogonal directions;

wherein said first and second drives are operable to move said tip in an elliptical pattern while varying the eccentricity of said elliptical pattern, and said apparatus is operable to repeatedly vary said eccentricity between a minimum value and one.

54. (New) A scanning apparatus, comprising:

a light transmitter having an exit tip; and

first and second drives for resonantly driving said light transmitter in orthogonal directions;

wherein said first and second drives are operable to move said tip in an elliptical pattern while varying the eccentricity of said elliptical pattern,

wherein said apparatus is operable to repeatedly vary said eccentricity from a minimum value to one and then back to said minimum value, and

wherein a portion of said pattern centered on the center of said elliptical pattern approximates a raster pattern.

55. (New) A scanning apparatus, comprising:

a light transmitter having an exit tip;

first and second drives for resonantly driving said light transmitter in orthogonal directions;

wherein said first and second drives are operable to move said tip in an elliptical pattern while varying the eccentricity of said elliptical pattern, and

wherein said apparatus is operable to modulate said eccentricity by modulating the minor axis of said elliptical pattern between positive and negative extremes, so that

said tip moves in both clockwise and counterclockwise directions in the course of a single complete scan.

56. (New) A scanning apparatus, comprising:

a light transmitter having an exit tip; and

first and second drives for resonantly driving said light transmitter in orthogonal directions;

wherein said first and second drives are operable to move said tip in an elliptical pattern while varying the eccentricity of said elliptical pattern,

wherein said first drive comprising an X drive for driving said tip parallel to the major axis of said elliptical pattern and said second drive comprising a Y drive for driving said tip parallel to the minor axis of said elliptical pattern, and

wherein said apparatus is operable to synchronise at a constant phase to the X scan to allow interfacing to a standard raster display.

57. (New) An apparatus as claimed in claim 56, wherein said Y drive is derived by synchronously switching a delayed version of said X drive.

58. (New) A scanning apparatus, comprising:

a light transmitter having an exit tip; and

a magnetic drive for resonantly driving said light transmitter in orthogonal directions and operable to move said tip in an elliptical pattern while varying the eccentricity of said elliptical pattern, said magnetic drive comprising (i) a magnet attached to said light transmitter and (ii) mutually perpendicular coils or windings, said magnet being magnetised axially and acted on by said mutually perpendicular coils or windings;

wherein said mutually perpendicular coils or windings comprise a pair of drive coils located symmetrically each on opposite sides of a rest position of said magnet in a first plane, and a further drive coil located in a second plane perpendicular to said first plane, and

wherein said apparatus further comprises a sensing coil for sensing the position of said magnet and located in said second plane symmetrically opposite said magnet from said further drive coil,

wherein each of said pair of coils, said further coil and said sensing coil are equidistant from said magnet in said rest position, said sensing coil is operable to output an output signal indicative of said position of said magnet, and

wherein said apparatus is operable to derive an input signal for said further coil from said output signal.

59. (New) An apparatus as claimed in claim 58, wherein said apparatus is operable to control a) said pair of coils in said first plane and b) said further coil and said sensing coil in said second plane, to swap functions so that said pair of drive coils in said first plane act as a drive coil and a sensing coil, and said further coil and said sensing coil in said second plane act as a pair of drive coils, wherein said apparatus can perform a further scan perpendicular to said elliptical pattern.

60. (New) A scanning apparatus, comprising:

a light transmitter having an exit tip; and

a magnetic drive for resonantly driving said light transmitter in orthogonal directions and operable to move said tip in an elliptical pattern while varying the eccentricity of said elliptical pattern;

wherein said light transmitter is provided with a coat of magnetic material or is located within a close-fitting magnetic tube.

61. (New) A scanning apparatus comprising:

an X drive for driving a light transmitter having an exit tip in an X direction;

a Y drive for driving said light transmitter in a Y direction;

an X drive input signal generator for providing an X drive input signal; and

a Y drive input signal generator for providing a Y drive input signal modulated by a modulating signal derived from said X drive input signal;

wherein said exit tip executes a scan pattern when driven simultaneously by said X drive and said Y drive,

said X drive input signal comprises a square wave signal, and

said Y drive input signal generator is configured to provide a sawtooth signal modulated by said modulating signal.

62. (New) An apparatus as claimed in claim 61, wherein said Y drive input signal generator is operable to generate said sawtooth signal such that said sawtooth signal is repeatedly inverted according to a trigger signal comprising a delayed version of said X drive input signal.

63. (New) An apparatus as claimed in claim 62, wherein said apparatus is operable to collect image data from said central portion of said scan pattern corresponding to an exit tip speed of greater than or equal to approximately 87% of a peak exit tip speed.

64. (New) A scanning apparatus comprising:

a magnetic drive comprising an X drive for driving a light transmitter having an exit tip in an X direction and a Y drive for driving said light transmitter in a Y direction;

an X drive input signal generator for providing an X drive input signal; and

a Y drive input signal generator for providing a Y drive input signal modulated by a modulating signal derived from said X drive input signal;

wherein said exit tip executes a scan pattern when driven simultaneously by said X drive and said Y drive,

wherein said magnetic drive comprises (i) a magnet attached to said light transmitter and (ii) mutually perpendicular coils or windings, wherein said magnet is magnetised axially and acted on by said mutually perpendicular coils or windings and said mutually perpendicular coils or windings comprise a pair of drive coils located symmetrically each on opposite sides of a rest position of said magnet in a first plane, and a further drive coil located in a second plane perpendicular to said first plane,

wherein said apparatus further comprises a sensing coil for sensing the position of said magnet and located in said second plane symmetrically opposite said magnet from said further drive coil, and

wherein each of said pair of coils, said further coil and said sensing coil are equidistant from said magnet in said rest position, said sensing coil is operable to output an output signal indicative of said position of said magnet, and said apparatus is operable to derive an input signal for said further coil from said output signal.

65. (New) An apparatus as claimed in claim 64, wherein said apparatus is operable to control a) said pair of coils in said first plane and b) said further coil and said sensing coil in said second plane, to swap functions so that said pair of drive coils in said first plane act as a drive coil and a sensing coil, and said further coil and said sensing coil in said second plane act as a pair of drive coils, wherein said apparatus can perform a further scan perpendicular to said scan pattern.

66. (New) An optical fiber endoscope, microscope or endomicroscope including a scanning apparatus as claimed in claim 61.

67. (New) An optical fiber endoscope, microscope or endomicroscope including a scanning apparatus as claimed in claim 64.